

Application No.: 10/749770

Docket No.: MWS-097

AMENDMENTS TO THE CLAIMS

1. (Previously Presented) In an electronic device, a data visualization method comprising the steps of:

providing a data structure holding a representation of a Markov model for a system being modeled;

populating said Markov model data structure with at least one of transition probability data and emission probability data for the system being modeled; and

displaying more than one dimension of said probability data from said Markov model in a heat map.

2. (Original) The method of claim 1 wherein said Markov model data structure is a Hidden Markov model data structure.

3. (Previously Presented) The method of claim 1 wherein a probability measure is displayed in color.

4. (Previously Presented) The method of claim 1 wherein a probability measure is displayed in grayscale.

5. (Previously Presented) The method of claim 1 wherein a probability measure is displayed graphically.

6. (Original) The method of claim 1 wherein said system being modeled is a protein family sequence.

7. (Original) The method of claim 1 wherein said system being modeled is one of a speech recognition system and a financial modeling system.

8. (Original) The method of claim 1, comprising the further step of:

displaying a model state along a first dimension, an output probability field along a second dimension, and a probability measure as a third dimension.

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9. (Original) The method of claim 8 wherein said probability measure is scaled using one of plain probabilities, log-probabilities and log-odds ratios probabilities.
10. (Original) The method of claim 9 wherein the scale is non-contiguous.
11. (Original) The method of claim 8 wherein said output probability field is one of a symbol emission mass distribution function at every state and transition mass distribution function at every state.
12. (Original) The method of claim 8 wherein every state in said model is displayed.
13. (Original) The method of claim 1 wherein only a portion of said probability data is displayed.
14. (Original) The method of claim 1, comprising the further steps of:
estimating programmatically said probability data prior to displaying said probability data.
15. (Original) The method of claim 14 wherein at least one of the Baum-Welch algorithm, Viterbi training algorithm, (Expectation Maximization) EM algorithm, and custom algorithm are used to estimate said probability data.
16. (Original) The method of claim 1 wherein said probability data is displayed in a heat map and comprising the further step of:
displaying an exact value of a probability measure in response to a user input.

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17. (Currently Amended) In an electronic device, a system, comprising:

a Markov model visualization process, said Markov model visualization process including a probability determining algorithm and a visualization function, said probability determining algorithm determining the probabilities of the occurrence of events in a system being modeled with a Markov model, said visualization function displaying the Markov model probabilities with three dimensions of data;

a storage location holding data for components of said system being modeled;

a display device interfaced with said electronic device, said display device displaying said three dimensions of data in a heat map to a user.

18. (Cancelled)

19. (Original) The system of claim 18 wherein the three dimensions of data are at least one model state, at least one output probability field, and at least one probability measure after scaling.

20. (Original) The system of claim 19 wherein said at least one probability measure after scaling is at least one of plain probabilities, log-probabilities and log-odds ratios probabilities.

21. (Original) The system of claim 19 wherein said output probability field is one of a symbol emission mass distribution function at every state and transition mass distribution function at every state.

22. (Original) The system of claim 17 wherein the system being modeled by the Markov model is a protein family.

23. (Currently Amended) ~~In an electronic device, a~~ A medium holding computer-executable instructions ~~steps~~ for a data visualization method, said ~~method~~ instructions comprising the ~~steps~~ of:

instructions for providing a data structure holding a representation of a Markov model for a system being modeled;

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instructions for populating said Markov model data structure with at least one of transition probability data and emission probability data for the system being modeled; and
instructions for displaying more than one dimension of said probability data from said Markov model in a heat map.

24. (Original) The medium of claim 23 wherein said Markov model data structure is a Hidden Markov model data structure.

25. (Previously Presented) The medium of claim 23 wherein a probability measure is displayed in color.

26. (Previously Presented) The medium of claim 23 wherein a probability measure is displayed in grayscale.

27. (Previously Presented) The medium of claim 23 wherein a probability measure is displayed graphically.

28. (Original) The medium of claim 23 wherein said system being modeled is a protein family sequence.

29. (Original) The medium of claim 23 wherein said system being modeled is one of a speech recognition system and a financial modeling system.

30. (Currently Amended) The medium of claim 23, wherein the instructions further comprising the further step of:

instructions for displaying a model state along a first dimension, an output probability field along a second dimension, and a probability measure as a third dimension.

31. (Original) The medium of claim 30 wherein said probability measure is scaled using one of plain probabilities, log-probabilities and log-odds ratios probabilities.

32. (Original) The medium of claim 31 wherein the scale is non-contiguous.

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33. (Original) The medium of claim 30 wherein said output probability field is one of a symbol emission mass distribution function at every state and transition mass distribution function at every state.

34. (Original) The medium of claim 23 wherein every state in said model is displayed.

35. (Original) The medium of claim 23 wherein only a portion of said probability data is displayed.

36. (Currently Amended) The medium of claim 23, wherein said ~~method~~ instructions further comprises ~~the further steps of:~~
instructions for estimating programmatically said probability data prior to displaying said probability data.

37. (Original) The medium of claim 36 wherein at least one of the Baum-Welch algorithm, Viterbi training algorithm, (Expectation Maximization) EM algorithm, and custom algorithm are used to estimate said probability data.

38. (Currently Amended) The medium of claim 23 wherein said probability data is displayed in a heat map and the instructions further ~~comprising the further step of:~~
instructions for displaying an exact value of a probability measure in response to a user input.

39-40. (Cancelled)